

## ABSTRACT

The systems and methods described herein include, inter alia, drug delivery devices that can provide doses of medicaments over a defined region of skin. Such systems and methods described herein may employ a hollow perforator that can receive a volume of drug and an actuator that can drive the perforator through a stroke cycle that accelerates the perforator and the volume of drug distally and then decelerates the perforator so that the volume of fluid is ejected out of the perforator.